V Panel Express

V Box Express II

User's Manual
Version 1.0

Kontron Embedded Computers GmbH

0-0096-3678

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Introduction

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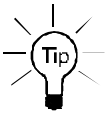
Symbols used in this Manual

Symbol	Meaning
	This symbol indicates the danger of injury to the user or the risk of damage to the product if the corresponding warning notices are not observed.
	This symbol indicates that the product or parts thereof may be damaged if the corresponding warning notices are not observed.
	This symbol indicates general information about the product and the user manual.
	This symbol indicates detail information about the specific product configuration.
	This symbol precedes helpful hints and tips for daily use.

Important Instructions

This chapter contains instructions which must be observed when using the V Panel Express.

The manufacturer's instructions provide useful information on the V Panel Express.

Warranty Note

Due to their limited service life, parts which by their nature are subject to a particularly high degree of wear (wearing parts) are excluded from the warranty beyond that provided by law. This applies to batteries and display, for example.

Exclusion of Accident Liability Obligation

Kontron Embedded Computers shall be exempted from the statutory accident liability obligation if the user fails to observe the safety instructions.

Liability Limitation / Exemption from the Warranty Obligation

In the event of damage to the device caused by failure to observe the hints in this manual and on the device (especially the safety instructions), Kontron Embedded Computers shall not be required to honor the warranty even during the warranty period and shall be exempted from the statutory accident liability obligation.

Safety Instructions

Please read this section carefully and observe the instructions for your own safety and correct use of the device.

The chapter also contains information on approval and interference suppression of your device.

Observe the warnings and instructions on the device and in the manual.

The device has been built and tested by Kontron Embedded Computers in accordance to EN 60950-1 and left the company in a perfectly safe condition.

In order to maintain this condition and ensure safe operation, the user must observe the instructions and warnings contained in this manual.

- The device must be used in accordance with the instructions for use.
- The electrical installations in the room must correspond to the requirements of the respective regulations.
- Take care that there are no cables, particularly power cables, in areas where persons can trip over them.
- Do not use a power cable in sockets shared by a number of other power consumers. Do not use an extension cable.
- Only use the power cord supplied.
- Do not place the device in direct sunlight, near heat sources or in a damp place. Make sure the device has adequate ventilation.
- Only devices and components which fulfill the requirements of an SELV circuit (safety extra low voltage) in accordance with EN60950 may be connected to the interfaces of the system.
- All plugs on the connection cables must be screwed or locked to the housing.
- The device is designed to be used in vertical position with the interfaces downwards.

- Repairs may only be carried out by a person authorized by Kontron Embedded Computers.
- Maintenance or repair on the open device may only be done out by qualified personnel authorized by Kontron Embedded Computers which is aware of with the associated dangers.
- The device may only be opened for the installation and removal of PCI cards in accordance with the description in this manual. These procedures have to be carried-out only by qualified specialist personnel.
- If extensions are made to the device the legal stipulations and the device specifications must be observed.
- The device must be switched off before installation and removal of any PCI and CompactFlash™ cards.
- Only original accessories approved by Kontron Embedded Computers may be used.
- It must be assumed that safe operation is no longer possible,
  - if the device has visible damage or
  - if the device no longer functions.

  In these cases the device must be shut down and secured against unintentional operation.

For DC Powered Systems

- The DC-input must fulfill SELV requirements of EN60950-1 standard.
- DC/DC-supplies do not fulfil the requirements for centralized DC power systems as required for use in the USA.

Electrostatic Discharge (ESD)

A sudden discharge of electrostatic electricity can destroy static-sensitive devices or micro-circuitry. Therefore proper packaging and grounding techniques are necessary precautions to prevent damage. Always take the following precautions:

1. Transport boards in ESD-safe containers such as boxes or bags.
2. Keep electrostatic sensitive parts in their containers until they arrive at the ESD-safe workplace.
3. Always be properly grounded when touching a sensitive board, component, or assembly.
4. Store electrostatic-sensitive boards in protective packaging or on antistatic mats.

Grounding Methods

The following measures help to avoid electrostatic damages to the device:

1. Cover workstations with approved antistatic material. Always wear a wrist strap connected to workplace as well as properly grounded tools and equipment.
2. Use antistatic mats, heel straps, or air ionizers for more protection.
3. Always handle electrostatic sensitive components by their edge or by their casing.
4. Avoid contact with pins, leads, or circuitry.
5. Turn off power and input signals before inserting and removing connectors or connecting test equipment.
6. Keep work area free of non-conductive materials such as ordinary plastic assembly aids and Styrofoam.
7. Use field service tools such as cutters, screwdrivers, and vacuum cleaners which are conductive.
8. Always place drives and boards PCB-assembly-side down on the foam.

Instructions for the Lithium Battery

The installed board is equipped with a lithium battery. To replace this battery refer to the instructions described in the chapter

"**Replacing the Lithium Battery** "

Warning

There is a danger of explosion if the wrong type of battery is used for replacement. Replace only with the same or equivalent type of battery as recommended by the manufacturer. Dispose of used batteries according to the manufacturers instructions.

FCC Statement

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Electromagnetic Compatibility

This product has been designed for industrial, commercial and office use, including small business use. The most recent version of the EMC guidelines (2004/108/EC) and/or the German EMC laws apply. If the user modifies and/or adds to the equipment (e.g. installation of add-on cards), the prerequisites for the CE conformity declaration (safety requirements) may no longer apply.

Scope of Delivery

- ☐ V Panel Express
- ☐ V Panel Express - User's Manual

Optional Parts

- ☐ CF Card
- ☐ DC Power Cable

Type Label and Product Identification

The type label with the corresponding Kontron product part number is at the rear right hand side of the system.

Type Label for Systems	**Kontron Product Identification**
V Panel Express 121/150/170	2-AOHA-xxxx for V panel Express with ETXexpress-PM Module
V Panel Express 121/150/170	2-AOHA-xxxx for V panel Express with ETXexpress-CD Module

On the type label of your system, the "XXXX" group is replaced by Arabic numerals combination according to the ordered system configuration.

Product Description

The V Panel Express is a Human-Machine-Interface (HMI) System designed for high industrial application. The V Panel Express is a workstation system with integrated touch screen display. The system is designed for:

- Installation in an instrument panel or other cabinets
- Installation by VESA 75/100 compliant mounting system

The hardware of the V Panel Express system can be flexibly configured corresponding to customized requirements. The rugged design offers excellent mechanical stability. The V Panel Express provides the demanding characteristics required for a computer that is very suitable for using in harsh industrial environment.
The system accommodates a baseboard with an ETXexpress® module. Depending on the ordered system configuration, your V Panel Express can be equipped with the ETXexpress®-PM or -CD ETX module.

Depending on the ordered system configuration, the built-in display can be as a 12.1”, 15“ or 17” TFT-LCD display. In front of the display there is installed a glass protection pane with antireflection properties. In front of the display is available a resistive touch screen. This protects the display surface from dirt and scratches also.

The V Panel Express accommodates two rear side accessible drive bays:

- drive bay (removable) for 2.5" SATA (I or II) HDD) and
- Compact Flash™-drive for CF card, type I.

Fig 1: V Panel Express (front side)

Fig 1a: V Panel Express (interface side)

The power button, the RESET button, the LED control indicators and user interfaces such as DVI-I/VGA, USB (2.0) LANs (10/100Mbps or 1Gbps) and serial ports (RS232) are accessible on the rear side of the system. At the front side is available a
USB (2.0) port.

The V Panel Express is designed to be powered from a DC high voltage external power sources.

The V Panel Express system ensures at the front side the IP65 (NEMA 250 Type 12 and 13) protection class.

The V Panel Express I is a fan less system. The cooling of the V Panel Express is performed by the heat sink surface of the chassis (rear side).

When powering on the V Panel Express, make sure that the air intake and exhaust openings are not obstructed.

Front Side View

At the front side are located:

- ☐ Panel Mount front plate
- ☐ Display (12.1"/15"/17") with corresponding resistive touch screen
- ☐ USB (2.0) connector (covered)

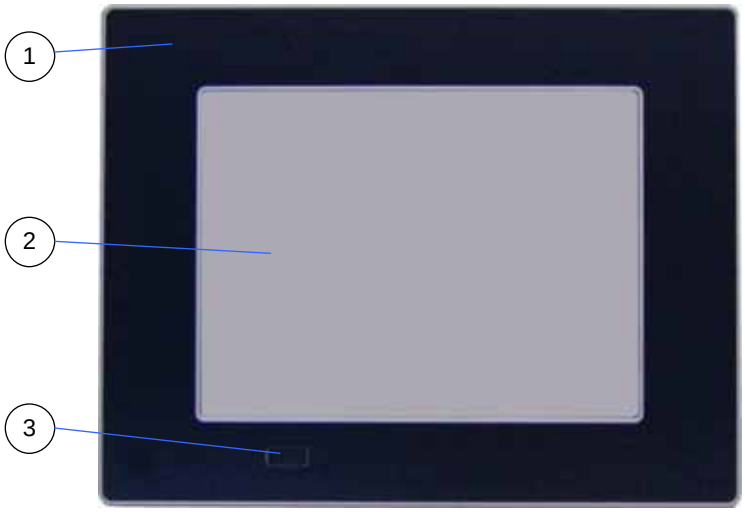


Fig. 2: V Panel Express (shown with a 15" display)

1 Front plate (panel mount)
2 TFT display (12.1”/15”/17”)
3 USB (2.0) connector (covered)

Panel mount Front Plate

This version of front plate is suitable for the installation in an instrument panel or other cabinets. Therefore at the rear side of the front plate are twelve threaded M4 metric studs refer to the “Rear Side” chapter.

Display

Depending on the ordered system configuration, the built-in TFT display has 12.1”, 15“ or 17”. For technical specifications of the built-in display refer to the “Main Specification” chapter.

The display is mechanically protected by the resistive touch screen.

Touch Screen

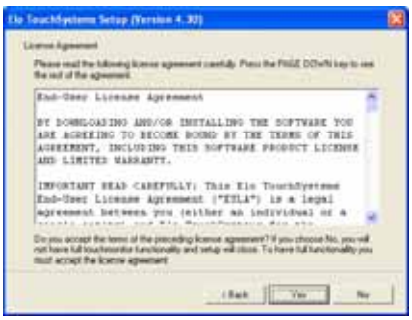
The display unit is equipped with a resistive touch screen. The touch screen is internally connected to the on-board USB interface of the installed ETX baseboard.

The touch screen registers contacts of a finger or a pen and moves the mouse pointer.

☞ Do not use a hard or a pointed object to operate the touch screen, since it can damage the touch screen foil surface.

Install touch controller software

Please download software form Kontron WEB server http://www.kontron.com/



>>Confirm license agreement

>>Start touch calibration

After complete installation and calibration of touch you find a new icon in the control panel to set additional features.

Calibrating the Touch Screen

Calibration serves two purposes:

- ☐ Sets the active area of the touch screen
- ☐ Aligns the active area of the touch screen to the screen's image.

Before you calibrate the touch screen, let the unit warm up for 30 minutes.

Calibration aligns the active touch-sensitive area of the touch screen with the image on the display. Calibration also determines the edges of the screen's image and locates the center of the touch screen. If the touch screen is not calibrated properly, the active area of the touch screen may not be aligned with the screen's image or may be unnecessarily small in size.

Use the calibration tool "Align" to recalibrate the touch screen as necessary:

The installed touch screen is calibrated at the factory. Run the calibration routine when an alignment problem exists between the mouse pointer and the contact location on the screen.

Carefully touch the location of the markers with your stylus to recalibrate the touch screen.

USB (2.0) Connector

This connector allows connection of USB-compatible devices.

The front side USB port with mounted plastic cover is also protected acc. IP65.

Rear Side

At the rear side of the V Panel Express are rubber seal, the 12 mounting threaded M4 metric studs and the PC unit with the heat sink. Also are available two screws for securing the PC unit to the display unit (not visible in the picture below).

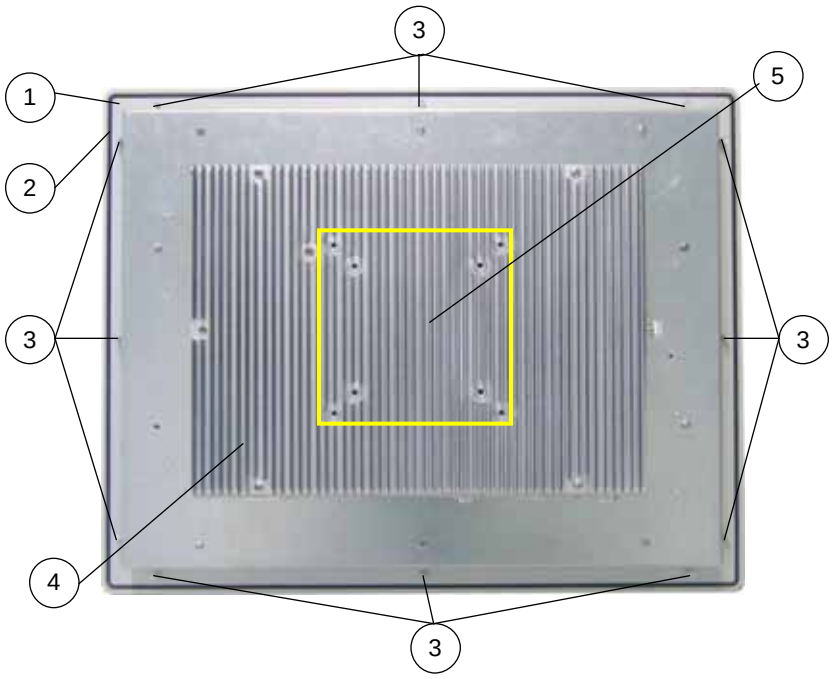


Fig. 3: V Panel Express (rear side)

1 Rear side of the front plate (panel mount)
2 Rubber seal (gasket)
3 Threaded M4 metric studs
4 Heat sink with VESA® 75/100 mounting holes
5 VESA® 75/100 compliant mounting holes

Bottom Side (with Interfaces)

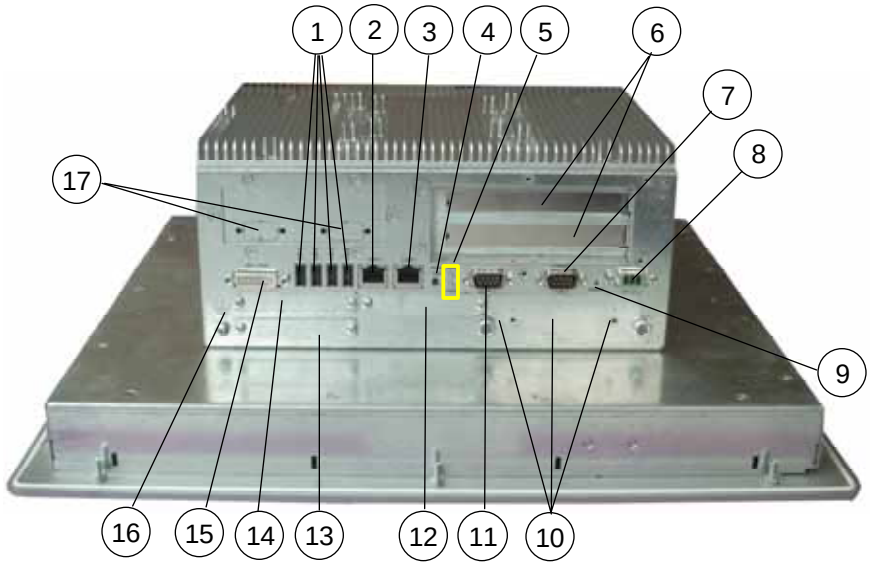


Fig. 4: V Panel Express (interface side)

1 4x USB (2.0) connector

2 LAN2 interface connector

3 LAN1 interface connector

4 Power button (ATX)

5 LED control indicators

6 Free expansion slots for PCI cards 32bit@33MHz (half size)

7 COM2 (RS232) port connector

8 DC power plug (shown with DC terminal for the power cord)

9 Reset switch

10 HDD drive cage with knurled screws

11 COM1 (RS232) port connector

12 CF slot (not equipped)

13 Express Card slot

14 CF slot (shown with installed CF card (type I)

15 DVI-I/VGA connector

16 Grounding Piont

17 COM3 and COM4 optional

Interfaces on the Bottom Side (Rear side of the System)

USB 2.0 Connectors

The system is equipped at the bottom side (rear) with four USB 2.0 interface connectors. These connectors and provide connections for USB-compatible devices.

DVI-I Interface Connector

The DVI-I interface (Single Link) supports both digital and analog connections. Digital devices can be connected directly to this interface of the V Panel Express but analog devices should be connected to this interface via a DVI to VGA adapter (not included).

Serial Interface Connectors (COM1 and COM2)

These RS232 connections are available as 9-pin D-SUB plugs and provide connection for serial devices.

Ethernet Interface Connectors

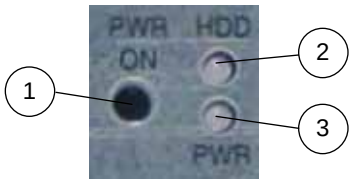
These interface connectors are provided as RJ45 sockets with integrated LEDs. The data transfer rate depends on the installed ETXexpress module (see below):

Ethernet Port	Data Transfer Rate for System Configuration with:	
	ETXexpress-PM Module	ETXexpress-CD Module
LAN1	10/100/1000 Mbps	10/100/1000 Mbps
LAN2	10/100/1000 Mbps	10/100/1000 Mbps

LED States:

Left LED State	Link Speed	Right LED State	Link Activity State
off	10 Base-T	Off	Link not active
green	100 Base-T	Green	Link active
yellow	1000 Base-T		

Power Button



1 Power button

2 HDD LED

3 Power LED

Fig. 5: Power button and LED indicators

The power button “PWR ON“ is located on the bottom side (rear) of the system. Press this button in order to turn the system on or off. The power button behavior can be set in the BIOS Setup.

Even the system is turned off via the ATX power button there is still a standby-voltage of 5 V on the ETX express baseboard.
The system is not completely disconnected from the main power source by turning it off via the ATX power button.
The unit is only completely disconnected from the main power source, when the power cord is disconnected either from the power source or the unit.
Therefore, the power cord and its connectors must always remain easily accessible.

LED Control Indicators

The V panel Express is equipped with two LED indicators (bottom, rear side).

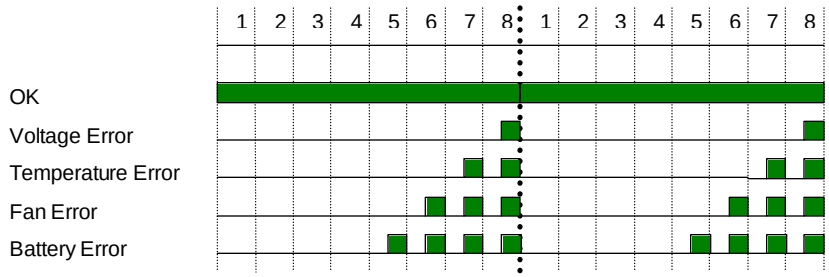
Power LED	Lights up green when the system is powered on via the power button.
	Lights up red when the system is in standby (depends on the behavior of the power button (BIOS Setup setting).
HDD LED	Lights up red for hard disk activity.

Power LED Error codes

This function display four important fail conditions:

- Voltage Error
- Temperature Error
- Fan Error
- Battery Error

All these errors will be notified by the status led and by a beeper. The following illustration shows the blink/beep for different conditions:



If more than one fail condition occurs simultaneously, only the highest priority error code will be shown.
The priority order is:

1.	most	Voltage Error
2.	less	Temperature Error
3.	less	Fan Error
4.	at least	Battery Error

E.g. is there a temperature error and a fan error, only the temperature error will be displayed.

		Error	**Good:**	**Error**
Voltage Error	12V	0..<11,4V	11,4V..12.6V	>12.6V..
	5V	0..<4.7V	4.7V..5.2V	>5.2V
	3.3V	0..<3.1V	3.1V..3.5V	>3.5V
Temperature Error		…<-10°C	-10°C… +79°C	>79°C
Fan Error	1	…<900 1/min	900 1/min...20000 1/min	>20000 1/min
	2	…<900 1/min	900 1/min...20000 1/min	>20000 1/min
Battery Error		0..<2.5V	2.5V … 3.5V	>3.5V

CompactFlash™ Slot

The V Panel Express is equipped with a bottom side accessible CompactFlash™ slot. (The second CF slot is not equipped; refer to *Fig. 4, pos. 14*). The CF slot will accept only CF cards type I.

☞ The system must be powered down before the Compact Flash™ card can be installed or removed.

Removable HDD Drive Cage

The V panel Express is equipped with a removable drive cage for a 2.5" SATA HDD. The drive cage is secured to the system with two knurled screws.

It is allowed to remove/replace the hard disk while the system is powered-up.

☞ In order to prevent the loss of data do not remove the hard disk during HDD read or write activities.

System operation is allowed only with closed HDD drive cage and secured by the knurled screws.

Fig. 6: Bottom side of V Panel Express (shown with opened removable drive cage)

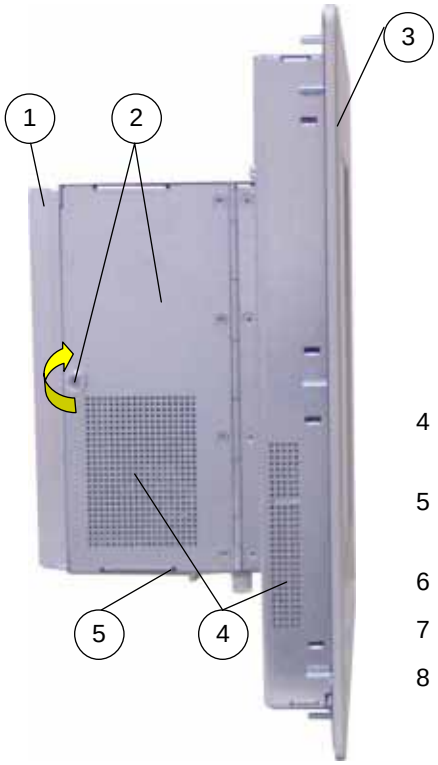
1 2.5” SATA hard disk

2 Removable drive cage

3 Knurled screws

Left Side (Expansion Card Access Side)

At this side is situated the expansion card access door secured with a knurled screw. When opening this access door you have access to the free card slots of the raiser card installed onto the ETX baseboard. Install the expansion cards as described in the “Installing/Removing the expansion cards”chapter.



4 Heat sink with VESA 75/100 mounting holes

5 Expansion card access door with knurled screw

6 Front panel with display

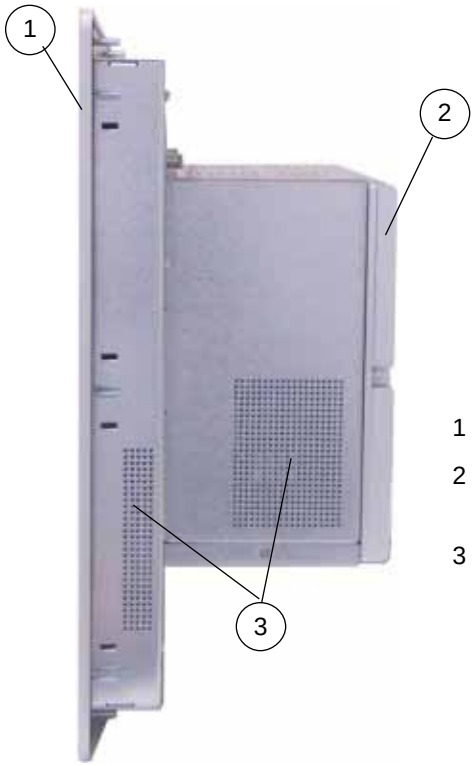
7 Exhaust openings

8 Interface side (bottom)

Fig. 7: Left side of V Panel Express

☞ When powering on the V Panel Express, make sure that the air intake and exhaust openings are not obstructed.

Right Side



1 Front panel with display

2 Heat sink with VESA 75/100 mounting holes

3 Exhaust openings

Fig. 8: Right side of V Panel Express

☞ When powering on the V Panel Express, make sure that the air intake and exhaust openings are not obstructed.

Top Side

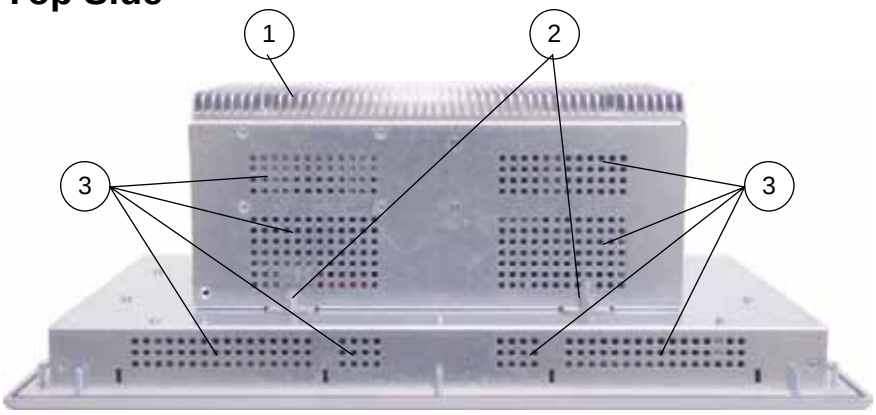


Fig.9: Left side of V Panel Express

1 Heat sink with VESA 75/100 mounting holes

2 Screws for securing the PC unit to the display unit

3 Exhaust openings

☞ When powering on the V Panel Express, make sure that the air intake and exhaust openings are not obstructed.

Integrated ETXexpress® Module

Depending on the ordered system configuration, your V Panel Express accommodates a baseboard with either an ETXexpress-PM or an ETXexpress-CD module.

Refer to the information and technical data in the user manual of the installed baseboard and ETXexpress Module.

The user's manual of the installed board can be downloaded from our web page www.kontron.com . Search for the name of the installed board.

Riser Card

The V Panel Express accommodates a riser card with two 32 bit PCI slots. You can expand your system with PCI extension cards as half size length.

To expand your system with additional cards, please observe the power consumption specification specified in the "Power Specifications" chapter and that every additional card does not exceed 25 W power consumption.

Starting Up

The DC power socket is located on the bottom side (rear) of the system.

☞ The voltage of the power source must correspond to the voltage value on the type label.

DC-Connection

☞ The length of the DC connecting wires may not exceed 3m. Strip and twist the connecting wire-ends but do not tin it the with solder.

Fig. 10: DC-connector (without Phoenix plug terminal)

*Fig. 10a: DC-Terminal (Phoenix plug terminal **AWG 28-16**)*

For the DC-connection prepare the connecting wires with the supplied Phoenix plug. Pay attention to the right polarity of the wires (refer to *Fig. 10* and *10a*).

The second end of each wire will be prepared as required for the connection to the DC-power supply.

Accessing Internal Components

This section contains important information that you must read before accessing the internal components. You must follow these procedures properly when installing, removing or handling any board.

Please consider following instruction when you install (or remove) expansion cards.

The installation and removal of expansion cards have to be carried-out only by qualified specialist personnel in accordance with the description in this manual.

Before removing the cover to gain access to the internal components, the system must be powered-down and the power cord has to be disconnected from the power source.

To expand your system with additional cards, please observe the power consumption specification specified in the “Power Specifications” chapter and that each additional card does not exceed 25 W power consumption.

Please observe the safety instruction for handling assemblies with static sensitive device.
Failure to take heed of this warning instruction can result in damage to the device.

Please consult the documentation provided by the manufacturer of the expansion card for instructions before attempting to install/remove an expansion card into/from the V Panel Express.

Installing/Removing the Expansion Cards

The expansion cards for the performance extension of your computer can be installed into the free slots of the riser card. Please consider following instruction when you install (or remove) expansion cards.

To install (or remove) an expansion card, follow these steps:

1. Turn off your system and disconnect the power cord from the power source.
2. The V Panel Express should lie on a flat, clean surface with the front panel downwards (Make sure that the display surface is protected against scratching and damage).
3. Loosen the knurled screw on the left side of the unit that secures the access door refer to *Fig. 7*, *pos 2*) and open the expansion card access door.
4. To remove/install an expansion card, you have to remove the corresponding expansion card/slot bracket. Loosen the corresponding fastening screw on the internal side, which secures the slot bracket and remove it. Retain the screws for later use
5. Insert/remove the expansion card into/from the slot of the riser card.
6. If you have removed an expansion card, re-insert a slot bracket.
7. Secure the bracket (slot bracket or card bracket) to the chassis with the fastening screw.
8. Close the access door and secure it with the knurled screw.

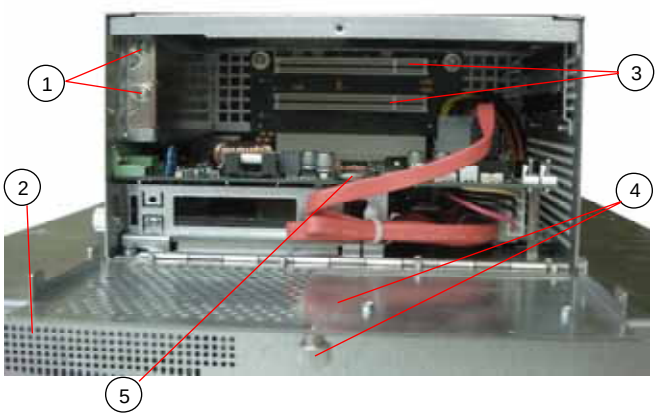


Fig. 11: V Panel Express with opened expansion cards access door)

1 Screws to secure the expansion cars/slot brackets
2 Front panel (detail)
3 Free PCI slots (32bit@32 MHz)
4 Expansion cards access door with knurled screw
5 Changeable Batterie

Maintenance and Prevention

Kontron Embedded Computers systems require minimal maintenance and care to keep them operating correctly.

- Occasionally wipe the system with a soft dry cloth.
- You should only remove persistent dirt by use of a soft, slightly damp cloth (use only a mild detergent).

☞ Do not use abrasives, abrasion sponges, steel wool, metal threads, or solvent like alcohol, acetone, or gasoline to clean the display's protection pane or the touch screen surface.

Replacing the Lithium Battery

The baseboard is equipped with a lithium battery. To replace this battery, please proceed as follows:

1. Open the unit as described in the "Installing/Removing the Expansion Cards" chapter (steps 1-3).
2. If your system is equipped with expansion cards, please remove them first as described in the "Installing/Removing the Expansion Cards" chapter (steps 5-6).
3. Remove the battery by pressing outwards the ejector spring.
4. Insert the new battery into the socket.
5. Make sure that you insert the battery correctly. The plus pole must be on top!
6. Reinstall the removed expansion cards and reconnect the removed data cable.
7. Close the Unit as described in chapter "Installing/Removing the Expansion Cards" (step 8).

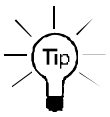
The lithium battery must be replaced with an identical battery or a battery type recommended by Kontron Embedded Computers (Lithium battery 3.0 V for RTC, type: CR2032).

Do not dispose of lithium batteries in domestic waste. Dispose of the battery according to the local regulations dealing with the disposal of these special materials (e.g. to the collecting points for the disposal of batteries).

Warning

There is a danger of explosion if the wrong type of battery is used for replacement. Replace only with the same or equivalent type of battery as recommended by the manufacturer. Dispose of used batteries according to the manufacturers instructions.

Installation Instructions



Expansion card installation should be performed before installing the V Panel Express system into an industrial cabinet or into a control panel. Refer to the chapter “Accessing Internal Components”.

Leave sufficient space at the interface side for connecting the peripheral devices.

Important Instructions!

If you mount the V Panel Express into an industrial cabinet, it is advisable to use two people for the mounting, because the system weighs approx. 11 kg (approx. 24,25 lbs).

Ensure there is sufficient air circulation around the device when installing the V Panel Express. The openings for air intake and exhaust on the device must not be obstructed.

Leave at least 5 cm (approx. 2”.) of free space around the PC unit to prevent the device from possibly overheating!

The voltage feeds must not be overloaded. Adjust the cabling and the external overcharge protection to correspond with the electrical data indicated on the type label.

The type label is located on the rear right hand side of the system.

If you install the V panel into an instrument panel or other cabinet use the twelve threaded M4 metric studs on the rear side of the front plate.

For the panel assembly, cut a window and twelve pre-drill holes according Mechanical Drawings for V Panel Express 121/150/170 on the web page www.kontron.com. The system must be attached firmly with twelve M4 metric nuts. The contact surface with the rubber seal must be clean and flush.

Operating System and Hardware Component Drivers

The V-Panel Express can optionally be supplied with or without a pre- installed operating system.

If you have ordered your V-Panel Express with a pre- installed operating system, all drivers are installed, corresponding to the ordered computer configuration (optional hardware components). Your computer is fully functional, when you switch it on for the first time.

If you have ordered your V-Panel Express without pre- installed operating system, you have to install the operating system and the corresponding drivers for the ordered computer configuration (optional hardware components).

The needed drivers can be downloaded from our web page: www.kontron.com. Search for the product name.

Consider the manufacturer specifications of the operating system and the integrated hardware components.

To expand your system with additional cards, please observe the power consumption specification specified in the “Power Specifications” chapter and that every additional card does not exceed 25 W power consumption.

Main Specifications

V Panel Express	121	150	170
Display (Size)	12.1”	15.0”	17.0”
Resolution	800x600	1024 x 768	1280x1024
Brightness	400 cd/m^2	350 cd/m^2	300 cd/m^2
Touchscreen	Resistive analog	Resistive analog	Resistive analog
V Panel Express Dimensions (HxWxD)	312x380x163 mm	354x450x163 mm	339x461x168 mm
Processor	Up to Intel® Core™ Duo T2500		
Lithium Battery	Type: CR2032; 3.0 V; 0.22Ah;		
External Interfaces (accessible at the front side)	1x USB 2.0		
External Interfaces (accessible from the bottom side)	1x DVI-I (single Link) or 1x external DVI to VGA Adapter 4x USB (2.0/1.0) 1x LAN2 10/100/1000 Mbps 1x LAN1 (10/100Mbps for ETXexpress-CD) or 1x LAN1 (10/100/1000 Mbps for ETXexpress-PM) 2x serial Port (RS232)		
Free Expansion Slots	2x PCI 32 bit @ 33MHz (half size)		
Removable HDD (external accessible)	1x SATA I (150Mbps) for config. with **ETXexpress-PM**) or 1x SATA II (300Mbps) for config. with **ETXexpress-CD**)		
Drive Bay (external accessible)	1x Compact Flash™ (on-board), for CF card type I		
Operating Elements (on back side)	Power button / Reset button		
LED Indicators (on the front panel)	Power LED HDD LED		
DC Power Plug	On the bottom side		
VESA 75/100 compliant	Rear side		
Operating System	Please refer to the actually data sheet on our web page: www.kontron.com Search for the product name.		

Power Specifications

Power Specification (max. power value for additional customized applications)	Total power of all additional customized applications	max.: 125W
	Power consumption per slot (PCI)	max.: 25W
	Power consumption at +3.3 VDC +5 VDC and +12 VDC (combined)	max.: 75W

Electrical Specifications

System Type	Input voltage	Input current
V Panel Express 121	24 VDC PSU +/- 20%	A: max. 5,4A
V Panel Express 150	24 VDC PSU +/- 20%	A: max. 5,4A
V Panel Express 170	24 VDC PSU+/- 20%	A: max. 5,4A

Mechanical Specifications

Weight (without packaging)	11 kg (24,25 lbs.) max
Housing	Zinc-coated steel, Aluminum front bezel

Environmental Specifications

Thermal Management	Fan less
Operating Temperature / relative Humidity	0 … +40°C / at 90 % r.H. non condensing 0 … +45°C / at 70 % r.H. non condensing
Storage / Transit Temp. / relative Humidity	0 … +40°C / at 90 % r.H. non condensing 0 … +45°C (max) / at 70 % r.H. non condensing
Operating Altitude	3000 m (10,000 ft)
Storage / Transit Altitude	4.500 m (15.000 ft)
Operating Shock	15 G, 11 ms duration, half sine
Storage / Transit Shock	30 G, 11 ms duration, half sine
Operating Vibration	10 – 500 Hz, 1.0 G
Storage / Transit Vibration	10 – 500 Hz, 2.0 G

CE Directives and Standards

CE Directives	
Low Voltage Directive (Electrical Safety)	73/23/EEC modified by 93/68/EEC
EMC Directive	2006/95/EC + 2004/108/EC
CE Marking	93/68/EEC

Electrical Safety	Standards
EUROPE	EN 60950-1
U.S.A.	to meet UL 60950-1, First Edition

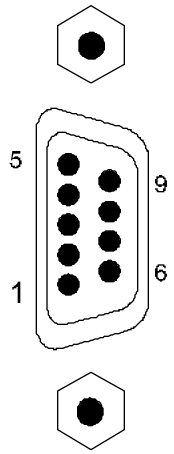
EMC	Standards
EUROPE	Generic emission standard for industrial environments (Emission): EN 61000-6-4 Generic standards - Immunity for industrial environments (Immunity): EN 61000-6-2
U.S.A.	FCC 47 CFR Part 15, Class A

Technical Appendix - Interfaces

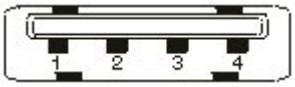
The following tables contain the plug assignments for the external connections of the V Panel Express.

Low-active signals are indicated by a minus sign.

Serial Port (COM1, COM2)

Pin	Signal Name		9-pin D-SUB Plug (male)
1	DCD	(Data Carrier Detect)	
2	RXD	(Receive Data)	
3	TXD	(Transmit Data)	
4	DTR	(Data Terminal Ready)	
5	GND	(Signal Ground)	
6	DSR	(Data Set Ready)	
7	RTS	(Request to Send)	
8	CTS	(Clear to Send)	
9	RI	(Ring Indicator)	

USB Port

Pin	Signal Name	4-pin USB Socket Type A Version 2.0/1.1
1	VCC	
2	Data-	
3	Data+	
4	GND	

DVI-I Connector (Single Link)

Pin	Signal Name	Description	DVI-I - Connector (female)
1	TMDS2–	Differential TMDS Data 2–	
2	TMDS2–	Differential TMDS Data 2+	
3	GND	TMDS Shield	
4–5	NC		
6	DVI_SCL	DDC EDID data clock	
7	DVI_SDA	DDC EDID data	
8	DVI_VS	Analog VSYNC	
9	TMDS1–	Differential TMDS Data 1–	
10	TMDS1+	Differential TMDS Data 1+	
11	GND	TMDS Shield	
12–13	NC		
14	DVI_5V	5V / 100mA Power Supply	
15	GND	Ground	
16	DISPDET	Hot Plug Detection	
17	TMDS0–	Differential TMDS Data 0–	
18	TMDS0+	Differential TMDS Data 0+	
19	GND	TMDS Shield	
20–21	NC		
22	GND	TMDS Shield	
23	TMDSSCL–	Differential TMDS Clock–	
24	TMDSSCL+	Differential TMDS Clock +	
C1	DVI_R	Analog red	
C2	DVI_G	Analog green	
C3	DVI_B	Analog blue	
C4	DVI_HS	Analog HSYNC	
C5	Analog GND	Analog Ground	

Technical Support

For technical support, please contact our Technical Support department.

German headquarter Hotline:
Tel: +49 (0)9461 950-104
Fax: +49 (0)9461 950-200
E-mail: support@kontron.com

Make sure you have the following information on hand when you call:
- the unit part id number (P/No #),
- and the serial number (S/No #) of the unit (provide the serial number found on the type label, placed on the rear right hand side of the system).

Be ready to explain the nature of your problem to the service technician.

If you have questions about Kontron Embedded Computers or our products and services, you may reach us at the aforementioned numbers, or at: www.kontron.com or by writing to:

Kontron Embedded Computers GmbH
Oskar-von-Miller-Str. 1

85386 Eching
Germany

Returning Defective Material

Before returning any material, please:

1. Contact our Service and request an
   RMA number (Return Material Authorization) by :
   Fax: +49 (0)9461 950-200
   E-mail: service@kontron.com
2. Make sure that you receive an RMA number from Kontron Embedded Computers-Service before returning any material. Clearly write or mark this number on the outside of the package you are returning.
3. Describe the device failure behavior.
4. When returning goods, include the name and telephone number of a person whom we can contact for further explanations if necessary. Where applicable, always include all duty papers and invoice(s) associated with the item(s) in question.
5. When returning a unit.
   - Ensure that the unit is properly packed in the original box.
   - Include a copy of the RMA form.